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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Burns, Doane, Swecker & Mathis, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

BRUENJES, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,851

Applicant(s)

JACCOUD, BERTRAND

Examiner

Christopher P. Bruenjes

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 22-37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/544,220.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20031027.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

QR

DETAILED ACTION

EXAMINER'S NOTES

1. The Examiner notes that along with the preliminary amendments to the claims arguments were filed in this application regarding how the claims overcome the art cited in the parent application. These arguments have been considered, and the newly presented claims have been rejected below using other art.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 203, 45, and 46. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

Art Unit: 1772

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

On page 10, lines 14-15, there appear to be typing errors with regard to the reference numbers. 23 should be 13, 20a should be 10a, 25 should be 15, and 28 should be 18.

On page 13, line 9, there appears to be a typing error with regard to the reference number. 50b should be 50a.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1772

4. Claims 23, 24, 29, and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification teaches explicitly multiple times that the thickness of the SiO_xC_y layers are between 5 to 500 angstroms and preferably 100 to 200 angstroms. The claims are claiming a much larger thickness of 0.5 to 5 micrometers or 1 to 2 micrometers. Because the specification describes to one having ordinary skill in the art that the thickness should not be greater than 500 angstroms, claims 23, 24, 29, and 31 contain subject matter which was not describe in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Furthermore, these thickness values claimed do not have 112 first paragraph support in the parent cases and therefore would not receive priority back to those dates.

Art Unit: 1772

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 28 and 32-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 28, the limitation "includes a core layer of paper or paperboard" renders the claim vague and indefinite because it is not understood if the second prefabricated laminate includes this layer in addition to the core layer already claimed in claim 22 or if the limitation is merely limiting the core layer already claimed as being formed of paper or paperboard. It appears from the specification and drawings that there is only one core layer and that it is made of paper or paperboard, so it is suggested that the claim be rewritten to read "wherein the core layer of the second prefabricated laminate is paper or paperboard."

Regarding claim 32, the limitation "straining the substrate film within a range between an upper limit of an initial plastic deformation of the substrate film determined by the Young modulus and a lower limit of any improvement of the cohesion

Art Unit: 1772

force of the oxide coating and the adhesive force between the oxide coating and the substrate film" renders the claim vague and indefinite. It is not understood how the substrate is strained with a range. The definition of strain is to stretch to the maximum extension and tautness, which is a point, not a range. Therefore, should the word "straining" be "stretching"? Also, the range is not defined in a definitive manner. It is not understood what the maximum and minimum points of the range are from the claimed language.

Claims 33-35 are indefinite because they are dependent on claim 32, which is indefinite as shown above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for

Art Unit: 1772

establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 22-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fayet et al (WO 99/19229 A1).

Regarding claim 22, Fayet et al teach a packaging laminate consisting of two prefabricated laminates (reference numbers 10a and 10b, Figure 4) and an intermediate adhesive layer (reference number 11, Figure 4). The first prefabricated laminate consists of a plastic substrate film (reference number 15, Figure 4) coated with a layer (reference number 16, Figure 4) of SiO_xC_y , in which x is within the range of 1.5-2.2 and y is within the range of 0.15-0.8 (see abstract). The second prefabricated laminate comprises a core layer (reference number 12, Figure 4) coated on both sides with a layer of heat-sealable thermoplastic polymer (reference numbers 13 and 14, Figure 4). The second prefabricated laminate is bonded to one side of the first prefabricated laminate by an intermediate adhesive layer (Figure 4). Regarding claims 23-24, 29, the limitation that the thickness is in the range of 0.5 to 5 micrometers appears to be

Art Unit: 1772

a conversion error as discussed above in the 112 first paragraph rejections of those claims. Because the instant specification specifically teaches that the thickness should not be greater than 500 angstroms, the claims are considered by the Examiner to reflect the specification and that the claims are conversion or typing errors. Therefore, it is the Examiner's position based on the specification that the thickness is 5 to 500 angstroms and preferably 100 to 200 angstroms. The thickness of the SiO_xC_y layer in Fayet et al is 5 to 500 angstroms. Regarding claims 25 and 37, the carbon containing silicon oxide layers have cohesion strength of at least 5.7GPa (p.18, 1.17-18). Regarding claims 26 and 35, the carbon-containing silicon oxide layers have an interface shear strength with the plastic substrate film of at least 170MPa (p.18, 1.20-21). Regarding claims 27 and 33, the substrate film consists essentially of polyethylene terephthalate (see abstract). Regarding claim 28, the core layer of the second prefabricated laminate is formed of paper or paperboard (p.8, 1.11-12). Claim 29 has all of the limitations of claim 23 and that x is within the range of 1.7-2.1 and y is within the range of 0.39-0.47 (p.3, 1.19-20) and that the heat sealable layers on either side of the core layer are heat-sealable in the range of 121°C to 260°C (p.8, 1.21-22). Regarding claims 30 and 31, the packaging laminate is used to

Art Unit: 1772

form a container (see abstract). Claim 32 has all of the limitations of claim 30 and that the SiO_xC_y layer is formed by vapor deposition on the substrate film by a plasma enhanced chemical vapor deposition method while straining the substrate film within a range between an upper limit of an initial plastic deformation of the substrate film determined by the Young modulus and a lower limit of any improvement of the cohesion force of the oxide coating and the adhesion force between the oxide coating and the substrate film (p.5, 1.22-25). Regarding claim 34, the SiO_xC_y layer is formed from a mixture of a vaporized organic silicon compound and oxygen in vacuum and the organic silicon compound is tetramethyl disiloxane (p.6, 1.3-4). Claim 36 is a package blank having crease lines (see abstract) having all of the limitations of claim 35.

Fayet et al fail to explicitly teach in one embodiment all that taught above as shown in Figure 4 and a SiO_xC_y layer on the other side of the plastic substrate film. However, Fayet et al teach another embodiment in which the SiO_xC_y layer is used as an exterior layer in contact with the food product contained within the assembled food container (Figure 11, p.14, 1.15 - p.15, 1.15). One of ordinary skill in the art would have recognized that the SiO_xC_y layer is used as an interior layer between the plastic substrate film and the intermediate adhesive layer or as

Art Unit: 1772

an exterior layer in contact with the food product contained within the assembled food container, as taught by Fayet in the embodiments of Figures 4 and 11.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to apply the SiO_xC_y layer to the exterior surface of the plastic substrate film of Figure 4 in order to provide increased gas and aroma barrier properties to the laminate and depending on the intended end result of the packaging laminate since it is taught that the SiO_xC_y layer is used as an interior layer and exterior layer, as taught by Fayet in the embodiments of Figures 4 and 11.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

7. Claims 22-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roulin et al (USPN 5,508,075) in view of Yamaguchi (JP 10-249976).

Regarding claim 22, Roulin et al teach a packaging laminate consisting of two prefabricated laminates (reference numbers 10a and 10b, Figure 5) and an intermediate adhesive layer (reference

Art Unit: 1772

number 11, Figure 5). The first prefabricated laminate consists of a plastic substrate film (reference number 15, Figure 5) coated with a layer (reference number 16, Figure 5) of SiO_x , in which x is within the range of 1.5-2.2 (see abstract). The second prefabricated laminate comprises a core layer (reference number 12, Figure 5) coated on both sides with a layer of heat-sealable thermoplastic polymer (reference numbers 13 and 14, Figure 5). The second prefabricated laminate is bonded to one side of the first prefabricated laminate by an intermediate adhesive layer (Figure 5). Regarding claims 23-24, 29, the limitation that the thickness is in the range of 0.5 to 5 micrometers appears to be a conversion error as discussed above in the 112 first paragraph rejections of those claims. Because the instant specification specifically teaches that the thickness should not be greater than 500 angstroms, the claims are considered by the Examiner to reflect the specification and that the claims are conversion or typing errors. Therefore, it is the Examiner's position based on the specification that the thickness is 5 to 500 angstroms and preferably 100 to 200 angstroms. The thickness of the SiO_xC_y layer in Roulin et al is 5 to 500 angstroms (col.6, 1.26-30). Regarding claims 27 and 33, the substrate film consists essentially of polyethylene terephthalate (col.5, 1.13-15). Regarding claim 28, the core

Art Unit: 1772

layer of the second prefabricated laminate is formed of paper or paperboard (p.4, 1.50-51). Claim 29 has all of the limitations of claim 23 and that x is within the range of 1.7-2.1 (see abstract) and that the heat sealable layers on either side of the core layer are heat-sealable in the range of 121°C to 260°C (col.4, 1.61-65). Regarding claims 30 and 31, the packaging laminate is used to form a container (see abstract). Claim 32 has all of the limitations of claim 30 and that the SiO_xC_y layer is formed by vapor deposition on the substrate film by a plasma enhanced chemical vapor deposition method while straining the substrate film within a range between an upper limit of an initial plastic deformation of the substrate film determined by the Young modulus and a lower limit of any improvement of the cohesion force of the oxide coating and the adhesion force between the oxide coating and the substrate film. Note this limitation is a process limitation within a product claim, which receives little patentable weight. Although all limitations in a claim are considered, articles are defined by structure and not how the structure is made. Therefore, the process limitations are only considered for the structure they form not for the steps themselves. In this case, Roulin et al teach the silicon oxide layers being coated onto the same substrate by PECVD. Thus, the article has the same or at least a patentably

Art Unit: 1772

similar structure as the claimed invention, absent the showing of evidence to the contrary. Regarding claim 34, the SiO_xC_y layer is formed from a mixture of a vaporized organic silicon compound and oxygen in vacuum and the organic silicon compound is tetramethyl disiloxane (col.1, 1.57-61). Claim 36 is a package blank having crease lines (col.2, 1.28-30) having all of the limitations of claim 35.

Roulin et al fail to explicitly teach in one embodiment all that taught above as shown in Figure 5 and a SiO_xC_y layer on the other side of the plastic substrate film. However, Roulin et al teach another embodiment in which the SiO_xC_y layer is used as an exterior layer in contact with the food product contained within the assembled food container (Figure 12, col.8, 1.10-37). One of ordinary skill in the art would have recognized that the SiO_xC_y layer is used as an interior layer between the plastic substrate film and the intermediate adhesive layer or as an exterior layer in contact with the food product contained within the assembled food container, as taught by Roulin et al in the embodiments of Figures 5 and 11.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to apply the SiO_xC_y layer to the exterior surface of the plastic substrate film of Figure 5 in order to provide increased

Art Unit: 1772

gas and aroma barrier properties to the laminate and depending on the intended end result of the packaging laminate since it is taught that the SiO_xC_y layer is used as an interior layer and exterior layer, as taught by Roulin et al in the embodiments of Figures 5 and 11.

Roulin et al fail to teach that the silicon oxide layer contains carbon atoms. However, Yamaguchi teaches that an inorganic oxide film containing silicon, oxygen, and carbon, formed by manipulating the gas stream of the tetramethyl disilioxane and other components of the PECVD process, is substituted for an inorganic oxide film containing only silicon and oxygen in order to improve the adhesive strength between the oxide film and the substrate layer so that the gas barrier performance remains high during use of the packaging laminate as a container (see abstract). Roulin already teach that the silicon and oxide portions of the inorganic oxide film should be in the range of one silicon atom to 1.5 to 2.2 oxygen atoms. Yamaguchi teach that the elemental composition ratio of the carbon to the silicon oxide is between 2 and 35-wt% (see abstract and p.2, paragraphs 9 and 10 of the machine translation), which is within the claimed range of 0.15 to 0.8 carbon atoms to one silicon atom. One of ordinary skill in the art would have recognized that Roulin et al and Yamaguchi are

Art Unit: 1772

analogous insofar as both references are concerned with forming gas barrier silicon oxide coatings on plastic substrates for the food industry (see abstract and p.1, paragraph 1 of the machine translation).

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to adjust the quantity of each of the reactant gas raw materials of the silicon oxide coating of Roulin et al in order to form a inorganic oxide film containing silicon, oxygen, and carbon at the ratios claimed, in order to improve the adhesive strength between the coating and the substrate in order to maintain the gas barrier performance of the laminate during use, as taught by Yamaguchi.

Regarding claims 25-26, 35, and 37, the cohesion strength of at least 5.7GPa and the interface shear strength with the plastic substrate film of at least 170MPa are latent properties of the carbon containing silicon oxide layers since the layers are made from the same composition by the same PECVD method.

Art Unit: 1772

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sacher et al (USPN 4,557,946); Kohler et al (USPN 6,203,898); Macquart et al (USPN 5,935,702); Namiki (USPN 5,641,559); Kunz et al (USPN 5,387,449); Egami et al (USPN 5,422,185); Izu et al (USPN 5,411,591); Parks et al (USPN 6,093,274).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1772

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher P Bruenjes
Examiner
Art Unit 1772
CPB
CPB
September 13, 2005


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

9/14/05